Topic 01 – Coronary heart disease

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Gender differences in STEMI patients treated by primary PCI

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Purpose: To compare one-year outcomes after primary percutaneous coronary intervention (PCI) for STEMI, according to gender.

Methods: Consecutive women referred to our Cath-Lab for primary PCI for STEMI <24H from August 2007 to January 2011 were included. They were compared to men undergoing primary PCI during the same period and matched for age and diabetes. The occurrence of all cause mortality, TVR and MACCE (Death, MI or stroke) were assessed at 12 months.

Results: Among 787 consecutive STEMI patients, 182 (23.1%) were women. They were matched for age and diabetes with 182 men. Mean age was 69±15 years, 18% had diabetes, 48% had multi-vessel coronary disease, 86% had radial PCI. After matching, clinical and procedural characteristics were comparable, except for an excess of renal failure (creatinin clearance 73±40 vs. 82±38 ml/min, p=0.041) and cardiogenic shock (15% vs. 7%, p=0.017) in women. Women had also less radial PCI (81% vs. 90%, p=0.024) than men. Follow-up was completed for 99.7% of the patients. At one year, 74 (20.4%) patients died, 26 (7.2%) had TVR and 94 (22.6%) had MACCE. Clinical outcomes were not statistically different between women and men after matching (Figure). After exclusion of patients with cardiogenic shock (10.7%) and/or out-of-hospital cardiac arrest (6.6%), the rates of death (11.3% vs. 11.8%, p>0.999) and MACCE (13.3% vs. 14.9%, p=0.746) remain comparable in women and men, respectively.

Conclusions: After matching for age and diabetes, women have comparable 12 month outcomes after primary PCI for STEMI compared to men, despite a higher risk profile.

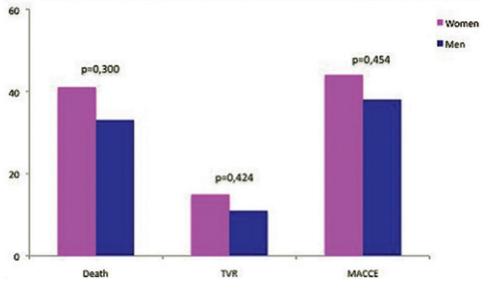

Figure – Results

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SYNTAX score in diabetic patients in the acute phase of myocardial infarction

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Introduction: The syntax score (SS) was developed in 2005 by the team of the Rotterdam Thorax Center to characterize the complexity of the coronary network by taking into account: 1/ the number of lesions and their impact on function, 2/ the location of the lesions, and 3/ their complexity. However, patients in this study had multivessel disease and stable angina. In patients with acute myocardial infarction (AMI), we aim to study the characteristics of the SS in diabetic patients and to determine the predictive value of the SS as compared with the GRACE score for in-hospital death.

Materials and methods: Our study analysed 1107 consecutive patients, including 873 non-diabetic patients and 234 diabetic patients, hospitalized for AMI in the intensive coronary care unit of Dijon from September 2011 to December 2012 and who had undergone coronary angiography. The SYNTAX and GRACE scores were both calculated for each patient.

Results: Median SS was significantly higher in diabetic patients (11 (4-15) vs. 8(4-15), p<0.001) than in non-diabetic patients. In multivariable analysis, three predictive factors for a high SS were found: female (OR=0.62; 95%CI=[0.45-0.89], (p=0.005)); age (OR=1.03; 95%CI=[1.02-1.04], (p<0.001)) and HDL-C (OR=0.28; 95%CI=[0.11-0.72], (p=0.008)). In-hospital mortality increased significantly with increasing SS score quartiles (Q1: 2.9%, Q2: 2.2%, Q3: 4.0%, and Q4: 9.7%, p<0.001). SS score was associated with in-hospital mortality, even after adjustment for confounding factors (GRACE score and left ventricular ejection fraction).

Conclusion: In acute MI, the SS score is a reliable tool as it provides objective information on the coronary network and is a prognostic factor in the short term. Nonetheless, further studies are needed to understand the influence of risk factors such as diabetes or hyperglycemia on the initial and residual SS, and to assess the impact of SS on pharmacological and other revascularization strategies.

003

Obstructive sleep apnea in patients with acute myocardial infarction: an underdiagnosed risk factor

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Background: The prevalence of obstructive sleep apnea (OSA) is significantly higher in patients with acute myocardial infarction (AMI) than in the general population. The identification of OSA is especially important because untreated OSA may lead to increased cardiovascular events. However, OSA remains largely underdiagnosed in our cardiology's clinical practice.

Aim: We sought to assess the prevalence of OSA in patients after MI and to identify clinical predictors of OSA in this population.

Methods: This was a prospective study which has included 120 patients hospitalized for ST elevation myocardial infarction, from April 2011 to March 2012.

All patients have undergone an overnight sleep study using a portable polygraphy device, in the 15 days following the acute coronary syndrome. The diagnostic of OSA was considered as apnea-hypopnea index (AHI) of ≥5 events/hour, severe OSA was defined as AHI of ≥30. Subjective daytime sleepiness was assessed by the Epworth sleepiness scale (EES). All patients have had an oxygen saturation monitoring in the coronary care unit using a pulse oxymeter, before undergoing the sleep study.

Results: The study population was up 102 men and 18 women. The mean age was 58±12 years. Smoking was the major cardiovascular risk factor with 72% of all patients; diabetes and hypertension were represented in 40% and 44% of the population, respectively.

The prevalence of OSA was 79%. Mean AHI was 15.76±14.93 and severe OSA was diagnosed in 16% of all patients. None of the OSA positive patients were previously documented. Multivariate analysis showed that independent predictive factors for severe OSA were ESS score of ≥4 (OR=28; 95%IC: 8--101), and nocturnal desaturation of <82% (OR=42; 95%IC: 8.86--198.9).

Conclusion: Prevalence of OSA was very high in patients admitted for acute myocardial infarction.

ESS score of ≥4 and nocturnal desaturation of <82% were independent predictive factors for severe OSA.

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Impact of gender on management of acute coronary syndrome. The ONACI registry

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Background: Several data suggest that management of acute coronary syndromes (ACS) could be different according to gender.

Aim: To evaluate the impact of gender on management of ACS from the ONACI registry.

Methods: ONACI is a national, prospective, multicenter registry. We focused on data between 2004 and 2008. We evaluated baseline clinical characteristics, angiographic results and management according to type of gender and, to type of ACS (ST-elevation myocardial infarction STEMI; non- ST-elevation myocardial infarction, NSTEMI).

Results: A total of 19,956 STEMI and 44,974 NSTEMI were included (mean age 62.7±13.9 and 60.7±12.7 years; 77 and 72% of men, respectively). Overall women were older and had a higher cardiovascular risk-profile. Proportion of normal coronary angiography or not significant stenosis (<50%) was higher among women whatever the type of ACS. Women were less revascularized (by percutaneous coronary intervention (PCI) or coronary artery bypass) than men whatever the class age: 93.7 vs 95.6% (<60 years), 92.5 vs 94.4% (60-74 years) et 91.9 vs 92.1 (>75 years) for STEMI patients; 86.4 vs 80% (<60 years), 84.2 vs 81.4% (60-74 years) et 80,1 vs 79,4% (>75 years) for NSTEMI patients. In-hospital complications were higher in women in term of death (3 vs. 1% for the STEMI; 0.4 vs. 0.2% for the NSTEMI) and bleeding complications.

Conclusions: Our results showed that several differences exist for management of ACS according to gender especially regarding myocardial revascularisation. Compared to men, women were less revascularized, and had more in-hospital complication after PCI.

005

Influence of the control of cardiovascular risk factors on silent myocardial ischemia and silent coronary stenoses in asymptomatic type 2 diabetic patients

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Silent myocardial ischemia (SMI) is a common complication of diabetes. SMI may be due to functional coronary disorders and/or coronary stenoses (CS). We hypothesized that control of cardiovascular risk factors (CVRF) at the time of investigation would be associated with a lower prevalence of SMI.

A total of 1627 asymptomatic type 2 diabetic patients with at least one additional CVRF were screened for SMI with stress and/or dipyridamole myocardial scintigraphy. SMI was detected in 412 patients (25.3%); a coronary angiography was performed in 298 of those with SMI and found CS in 131 patients (44%). The patients were classified according to control of blood pressure (≤140/90mmHg), HbA1c (≤7.5%), LDL cholesterol (≤2.6mmol/l) and triglycerides (≤2.3mmol/l).

SMI prevalence was inversely associated with the number of controlled CVRF (39.6%, 35.7% 24.7%, 19.8%, 17.7% in patients with none, 1, 2, 3 or 4 controlled CVRF, respectively; p<0.001). In multivariate analysis taking into account the number of controlled CVRF (3 or 4 vs 0-2), age, diabetes duration, gender, retinopathy, nephropathy, smoking, HDL cholesterol, peripheral vascular disease, SMI was associated with a lower number of controlled CVRF (odds ratio 0.53[95CI 0.39-0.74]), male gender (2.4[1.8-3.3]) and peripheral vascular disease (1.6[1.02-2.5]). Among the patients with SMI, the prevalence of CS was lower in the patients with 3-4 controlled CVRF than in those with 0-2 controlled CVRF (34.5 vs 47.7%, p<0.05), even after multivariate analysis.

In conclusion, in patients with type 2 diabetes, SMI is markedly lower and is less concordant with CS when the number of controlled CVRF is higher, even after adjustment on confounders. This strongly suggests the preventive efficacy of CVRF control on silent coronary artery disease.

006

Coronary microvascular dysfunction in type 2 diabetic patients assessed with velocity-encoded cardiovascular magnetic resonance of the coronary sinus at baseline and in response to cold pressor test

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Background: Diabetes mellitus is a well known cardiovascular risk associated with structural and functional myocardial alterations, independently of other known causes of cardiac disease. Current evidence supports an existing role of microvascular disorder in diabetic cardiomyopathy. The purpose of this initial study was to assess non invasively microcirculatory alteration and particularly coronary endothelial function in diabetic patients by myocardial blood flow (MBF) measurement using coronary sinus (CS) flow quantification by velocity encoded cine cardiovascular magnetic resonance (CMR) at rest and during cold pressor test (CPT).

Methods: Twenty-four volunteer men (12 diabetic patients, 12 healthy control subjects) underwent CMR in a 3 Tesla MR imager. Coronary sinus flow was measured at rest and during CPT using non breath-hold velocity encoded phase contrast cine-CMR. Myocardial function and morphology were acquired using a cine steady-state free precession sequence.

Results: At baseline, mean MBF was 1.22±0.23 $ml.g^{-1}.min^{-1}$ in diabetic patients and 0.63±0.23 $ml.g^{-1}.min^{-1}$ in nondiabetic population. The rate pressure product (RPP) is significantly higher in diabetics than controls, at rest. During CPT, MBF increased significantly in both diabetic and healthy men by 0.53±0.27 $ml.g^{-1}.min^{-1}$ ($p < 0.005$) and by 0.22±0.19 $ml.g^{-1}.min^{-1}$ ($p<0.005$), respectively. The increase in MBF was significantly higher in diabetics than controls (p=0.036) whereas RPP increased similarly in both populations. Coronary vascular resistance (CVR) and endothelium-dependent vasodilatation index (EDVI) were not significantly different between the 2 groups in response to CPT.

Conclusion: Elevated baseline blood flow is characteristic of coronary microvascular dysregulation in diabetic patients. This alteration seems to be independent of endothelial dysfunction seeing that response of coronary vasodilator function is improved to increased sympathetic stimulation.

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Acute coronary syndrome in giant cell arteritis: case report of diagnostic dilemma

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Background: Giant cell arteritis (GCA), also known as granulomatous arteritis is a systemic vasculitis mainly affecting extra cranial branches of carotid arteries. It can rarely affect other vascular beds causing thoracic aorta aneurysm, dissection and rarely cause myocardial infarction through coronary arteritis. We describe a rare case

Observation: We report the case of a woman aged 62 years with no history pathological allowed for significant holo cranial headache. The examination found weakness and hyperesthesia of the scalp, blood pressure was normal on both arms, pulse is 74 b/mn. Palpation of the temporal arteries is normal. She present a polymyalgia rheumatica. Labs were significant for normochromic normocytic anemia

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